

# **Southern Forest Assessment**

## **Experts Meeting to Define Questions for the Assessment**

June 17-18, 1999

Westin Airport

Atlanta, Georgia

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## **Executive Summary**

On June 17 and 18, 1999, several federal experts in various areas of forest and natural resource analysis were assembled in Atlanta, Georgia to provide input on the structure of an assessment of forest resources in the US South. Through a series of small group discussions, this group generated a set of specific concerns that the assessment could address and then, for each of these concerns, a set of specific questions that the assessment could address. In addition, these experts also generated ideas regarding what data might be available for each of the questions posed.

After the meeting, these questions were sorted and grouped to define a manageable set of preliminary assessment questions (the grouping of questions was approved by the assessment planning team). The Preliminary Assessment Questions will be used as the starting point for a public review of the assessment's structure.

This paper documents the outcomes of this meeting. Enclosed are (1) the final preliminary assessment questions, (2) the meeting plan and agenda, (3) output from each of the sessions explained in the meeting plan, (4) the initial sorting of questions, and (5) the pre-meeting information provided to each participant.

July 20, 1999

## **Southern Forest Resource Assessment Preliminary Assessment Questions**

Assessing the long term vitality of the South's forest resources is a complex undertaking. To focus our efforts, we have, with the assistance of group of experts, drafted a set of preliminary assessment questions. These questions are organized around five broad categories: (1) Landscapes/Terrestrial Ecosystems, (2) Social and Economic Factors, (3) Timber Markets and Forest Management, (4) Forest Extent, Conditions, and Health, and (5) Watersheds, Aquatic/Riparian Ecosystems, and Forested Wetlands. The preliminary questions are listed below for your review and comment.

### **Landscapes/Terrestrial Ecosystems**

Southern forests are habitat for numerous plant and animal species, and past forest treatments have resulted in today's wildlife and plant communities. Forest management practices, forest use for recreation and other purposes, conversion to non-forest land uses or to different forest species, and stresses of urbanization will all play important roles in shaping landscape and terrestrial ecosystems in the future. Relevant questions include:

1. What is the history, status, and likely future of terrestrial wildlife habitat types in the South?
2. What conditions will be needed to sustain plant and animal habitat associations in the south?
3. What are the likely effects of expanding human populations, urbanization and infrastructure development on habitats, animals, and plants?
4. How has forest management and access shaped terrestrial ecosystems in the south?

### **Social/Economic Factors**

Southern forests are vital to the economy of the region. Demand for forest products and recreational opportunities continue to grow, as the region's, nation's and world's population expands. Increased habitation of heretofore rural forested areas of the South affects landowner and citizen attitudes toward forests and their management. Laws, regulations and policies have evolved, reflecting the changing demographics of the region. All of these factors affect the manner in which forests are managed, and thus their long-term condition. Relevant questions include:

1. How have land uses changed in the South and how might changes in the future affect the forest land base?
2. What is the demographic profile and attitudes of southern citizens toward forests and their management and how have they changed?
3. How do current policies, regulations, and laws (for example, Best Management Practices) affect forest resources and their management?
4. What motivates private forest landowners to manage their forest land and how are their management objectives formed?
5. What role do forests play in employment and local economies in the South?
6. What are the supplies of and demands for forest based recreation and other uses of forests in the South?

## **Timber Markets and Forest Management**

Historically, wood and fiber demand dictated the type and location of forest management treatments on the South's forest lands. While this relationship is likely to continue, demands for timber and the technology available to harvest and process it are changing. Concurrently, silvicultural applications are being refined as a result of research of their effectiveness and ecological consequences. The South's forests will in a large way reflect the interconnectedness of the above factors. Relevant questions include:

1. What are the demands for and supplies of wood products in the South?
2. What are the status and trends of forest management practices in the South?
3. How might new technologies influence timber harvesting and conditions of forests?
4. What are the management approaches of various forest ownership classes in the South?

## **Forest Extent, Conditions, and Health**

The South's forestland base has fluctuated over time in response to social and economic conditions, and will likely continue to do so. Land ownership patterns are also changing. Past treatments have resulted in a forest comprised of a patchwork of age classes and forest types. Exotic pests and diseases have and will continue to affect forest composition and vitality. All of these factors directly affect the entire spectrum of forest functions and values, and must be recognized if southern forest resources are to be sustained. Relevant questions include:

1. What is the history, status, and likely future of southern forests (area, ownership, and location)?
2. What is the history, status, and likely future of the structure of forests in the South (age, species composition, stand size, stand origin, fragmentation)?
3. What factors (insects, disease, fire exclusion, environmental stressors) have and could continue to influence the overall health of the South's forests?

## **Watersheds, Aquatic/Riparian Ecosystems, and Forested Wetlands**

Forests are the headwaters for the region's water supplies, and provide the highest quality habitat available for many freshwater fish, amphibians, and mussels. Much of the region's forest-based recreation occurs within close proximity to or directly involves forest streams. Forested wetlands likewise provide an abundance of unique ecological functions and values for society. Southern streams and wetlands carry a legacy of past forest treatments, and will continue to reflect the effects of their management. Relevant questions include:

1. What is the history, status, and likely future of water quality in southern forested watersheds?
2. What is the history, status, and likely future of forested wetlands in the South?
3. How have forest management activities and other forest uses influenced water quality and aquatic habitat in forested watersheds?
4. What are the implementation rates and effectiveness of BMP's in the South?
5. What is the history, status, and likely future of aquatic habitats and species in the South?

6/16/99

**\*\* MEETING DESIGN \*\***

**Southern Sustainability Assessment  
Meeting of Experts to Craft Questions**

**Westin Hotel, Atlanta, GA  
June 17-18, 1999**

**PURPOSE for this meeting:**

To develop a first cut at the questions that will drive the assessment of the forest resources of the Southern U.S.

**DESIRED OUTCOME of this meeting:**

The Planning Committee will have the views of a cadre of credible technical resource specialists on important issues and questions the Sustainability Study could address. The Planning Committee will be able to evaluate this input and use it as a jumping-off-point for the July public meetings.

**DESIRED PRODUCTS:**

1. A list of **a few broad concerns** about each of five aspects of the forests of the South:  
Forest Extent, Conditions, and Health  
Landscape/Terrestrial Ecosystems  
Water/aquatic Ecosystems  
Timber Markets/Forest Management  
Social & Economic Systems).

Intermediate Product: the raw list of concerns identified in the initial brainstorm.

2. For each of the few broad concerns, **a list of questions** that must be answered to address the concern.
3. For each question, **an assessment of the feasibility** of answering the question in the context of the Sustainability Study.

**PARTICIPANTS:**

John Greis  
Dave Wear

Approximately 30 natural resource professionals and researchers from the F.S., F&WL, TVA, and EPA.

Nancy Walters, SRS (Facilitator)

**FACILITY AND EQUIPMENT & SUPPLIES NEEDED:**

Conference room set up in herringbone classroom style; with screen and A/V stand  
5 small conference rooms set up with chairs only (or round table) for 8  
6 Flipcharts (one in each small room); markers  
5 laptops (Dave-3; Nancy-1; John-1)  
2 printers (Dave-1; Nancy-1)  
5 diskettes with preloaded templates  
ream of paper  
Overhead projector (John will bring)  
Transparencies and OH pens  
Nametags

**PREWORK:**

Dave/John will continue to contact prospective attendees  
Dave will immediately communicate hotel and meeting logistics to attendees.  
John will find/develop the list of questions used in the Southern Appalachian Assessment  
Dave will send a packet of background information to all attendees two weeks prior to the meeting. It will include:

- \* cover letter
- \* background paper
- \* draft meeting design/agenda (short version of this design)
- \* sample list of questions from the SAA

## FACILITATOR'S AGENDA

### **Thursday, June 17**

#### **8:00 am      Check-in**

At a table outside the meeting room ask participants to get nametags and register into one of the five small groups:

- Forest Extent, Conditions, and Health
- Landscape/Terrestrial Ecosystems
- Water/aquatic Ecosystems
- Timber Markets/Forest Management
- Social & Economic Systems

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#### **8:30 am      SET-UP and INTRODUCTIONS**

*1 hour 10 min*

##### **Purpose:**

- \* To welcome participants to the meeting.
- \* To, through self-introductions, review some of the expertise and expectations participants bring to the meeting.
- \* To let participants know what to expect from this meeting.

##### **Process:**

- \* John and Dave open the meeting welcoming participants.
- \* John or Dave introduces Nancy as facilitator.
- \* Nancy facilitates introductions by asking each participant to give:
  - \* Name
  - \* Expertise they bring to the meeting
  - \* An assumption they bring about this meeting or study.
- \* John/Dave give presentation that sets the stage for the meeting
- \* Nancy walks through the agenda suggested for the meeting and sets up the process for the first group breakout.

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#### **9:40 am      BREAK**

*20 min*

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#### **10:00 am      GENERATING THE CONCERNS this ASSESSMENT COULD ADDRESS**

*1 1/2 hours*

**Purpose:**

To identify the major concerns (perceived or real) related to the status, productivity, ecological diversity, and sustainability of Southern Forests.

**Process:**

(60 min) Step 1: In facilitated small group sessions, brainstorm full-sentence answers to the trigger question:

*"What do you see as the major concerns (perceived or real) affecting the productivity, ecological diversity, and sustainability of the "water/aquatic ecosystems" of Southern Forests?"* (Modify ea question for the 5 small groups.)

Make sure the responses say what the concern is in full sentences.

Once in the small group, ask for volunteers for a:

laptop recorder

facilitator

flipchart recorder

person to stay back for Step 2 of this segment

\*Give everyone 10 minutes to silently generate answers to the trigger question.

\*In pure brainstorm fashion, the facilitator asks for participants to share their answers with the group.

\*Flipchart recorder puts them up as said.

\*Laptop recorder keeps a running log of ideas as put up on flipcharts.

\*Facilitator keeps the momentum going, not allowing people to evaluate or discuss the ideas except for brief clarification.

(45 min) Step 2: Disband the small groups and have all participants roam around to each breakout room reading and adding to the concerns developed in small groups. One person (or two trading off) from each small group stays in the room to help clarify what others are reading, and understand what others may add.

**Product:**

A list of major concerns related to each of five aspects of Southern forests resulting from input from all participants.

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**11:30 am LUNCH**

*1 hr 15 min*

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**12:45 pm REFINING THE CONCERNS**

*1 hour*

**Purpose:**

To massage the brainstorm list of concerns into 4-6 broad, general concerns that would be appropriate to address in this regional-scale assessment.



**Process:**

In facilitated small groups, modify and combine the concerns from the morning (perhaps putting some to the side) to develop a few (4-6) broad concerns that would be appropriate to use in this regional-scale assessment.

Note: groups are to retain the original concerns developed during the brainstorm on the electronic version.

At the end of the session, the few concerns should be written on an overhead transparency to be brought into the large group for presentation.

**Product:**

A list of 4-6 broad concerns per small group that will be used to drive the selection of questions to address in the assessment. These will be written on overhead transparencies and recorded electronically.

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**1:45 pm      REVIEWING THE CONCERNS**

*1 hr*

**Purpose:**

To allow all the participants to review the broad concerns identified by small groups

**Process:**

In the large group conference room, have small group spokesperson present the concern statements.

Facilitate a discussion for understanding but allow redundant and overlapping concerns to stand and be addressed in the afternoon small group sessions.

Allow about 12 minutes per group.

**Product:**

A clearly articulated and understood list of all the concerns generated by participants regarding Southern forests

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**2:45 pm      BREAK**

*15 min*

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**3:00 pm      GENERATING QUESTIONS THAT ADDRESS THE CONCERNS**

*1 hr 30 min*

**Purpose:**

To generate questions that must be answered to address the concerns identified earlier. A subset of these questions will ultimately provide the focus for the assessment.

**Process:**

In facilitated small group sessions, for each concern identified by the small group, generate answers to the trigger question:

*"What specific questions must be answered to address this concern?"*

*The question must be answerable*

- 1. with existing data*
- 2. within a one-year timeframe*
- 3. at a regional scale, allowing for exceptions.*

The questions can focus on current conditions, changes, or trends (past observed or forecast for the future). They should be stated as full-sentence questions.

**Product:**

For each broad concern, a list of questions that must be answered to address the concern. This will be on flipcharts and on disk. The disk should be handed to Dave/John/Nancy at the end of the day.

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**4:30 pm      ADJOURN for the day**

## **Friday, June 18**

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**8:00 am      REVIEWING THE QUESTIONS**

*45min*

**Purpose:**

To give all participants a chance to read and comment on the questions generated in small group

**Process:**

In the large group room:

- \* Pass out the lists of concerns generated in small group the day before; give folks a chance to read (10 minutes or so)
- \* Facilitate a discussion for questions for clarity, additional comments, or questions.
- \* All participants may see questions that may have been generated outside their small group where they think they can address feasibility.

**Product:**

Greater clarity on the questions and understanding group-wide of the small group ideas. And initial thoughts on aspects of the feasibility of addressing some of the questions.

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**8:45 am      ASSESSING FEASIBILITY OF ANSWERING THE QUESTIONS**

*1 hr 45 min*

**Purpose:**

To document the participants understanding of the feasibility of answering the suggested questions in the context of this Assessment.

**Process:**

(25 min) Using the hard copy template provided, provide individuals time on their own to document the feasibility of answering each question.

(20 min) COFFEE BREAK

(1 hour) In small group discussion, talk about the group members' views of each question's feasibility.

**Product:**

For each question, one or more "forms" assessing of the feasibility of answering the question in the context of the Sustainability Study. These should be handed to John/Dave/Nancy before leaving the meeting.

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**10:30 am      EXPERT'S FEEDBACK ON THE ASSESSMENT**

*1 hr 15 min*

**Purpose:**

To give John/Dave the benefit of hearing the participants views/experiences/suggestions on this assessment.

**Process:**

Facilitate a discussion asking for their general comments on the process being proposed for this assessment. Ask them to think of and comment on:

- pitfalls to watch out for
- words of wisdom
- general observations of what they know to be the approach
- other things happening that may influence this assessment
- other considerations Dave and John should think about.

**Product:**

Flipcharted dialog. Dialogue on disk.

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**11:45 am      ADJOURN**

## **Session #1**

### **Generating the Concerns this Assessment could Address**

#### **Landscape/Terrestrial Ecosystems**

1. Land use changes has increased forest fragmentation.
2. Changing forest land ownership patterns have led to increased forest fragmentation.
3. Timber harvesting patterns have led to shifts in the distribution of various seral stages and that in turn influences habitat obligates.
4. Changing forest management are negatively impacting bird habitat and populations through reduction of structural diversity
5. The amount of clear-cutting is negatively impacting soils and water quality.
6. Loss of fire in the South is negatively affecting fire-dependent species and communities.
7. Changes in land use practices and forest management has resulted in shifts in historic forest species composition and disturbance regimes.
8. Intensive timber management is having a negative impact on select wildlife species (through habitat loss and change).
9. Past and future road building are having a negative affect on forest resources.
10. Invasion of exotic species is negatively affecting some or select native vegetation and animal species.
11. Increased recreational demands are impacting forest management options.
12. Ecosystem/holistic management versus single focus management.
13. What is the interface between the agencies?
14. Forest ecosystem sustainability is impacted by:
  - Population growth
  - Increasing resource demand
  - Laws and regulations
  - Increased road construction
  - Urbanization
  - Landowner attitudes
  - Public attitudes
  - Landowner vs. non-landowner demands on resources
  - Absenty landowner attitudes
  - Intensive management practices intensifying
  - Alternatives to wood use
  - Recreation

- Forest insects and disease
- Ozone
- Nitrate/sulfate deposition
- Exotics
- Global economics
- Management agency budget constraints
- Landowner budget constraints
- Past management practices (historic land practice impacts)
- Natural disturbance (drought, flood, hurricane, etc.)
- Tax laws

## **Social /Economic Systems**

What are the major concerns affecting the productivity, ecological diversity and sustainability of the social/economic aspect of southern forests?

1. -increasing population of country is driving increased demand of forest resources
2. -what role does the forest play in the local/county level economy?
3. -public agency do not adequately consider forest land availability and accessibility in planning resource use
4. -fragmentation of forest land from urban and transportation infrastructure
5. -lack of coordinated management among numerous public and private landowners
6. -input from public arena is strongly influenced by small groups with strong agendas
7. -lack of strategic planning regarding the retention of forest resource based jobs
8. -increased urbanization is depleting forest resource
9. -what are the impacts of changing forest management/practices on limited resource or minority land owners in the south?
10. -land owners are fearful of increased regulation and loss of private property rights
11. -social economic changes affecting demand for non-market uses, such as recreation
12. -public perceptions are causing forest health problems
13. -the majority of the population, especially in urban areas, does not have adequate information concerning natural resources to make decisions about those resources
14. -opportunities to diversify many rural forest based economies are very limited
15. -increasing wealth and leisure time of population will cause more people to recreate
16. -what are the impacts of state/local laws on practice of forestry, in the south?
17. -demographic changes and increased urbanization will shift historically public land issues to private forest ownership arena
18. -lack of land and resource planning capabilities in rural communities to address forestry issues
19. -not knowing the most effective management and policy responses to changes in landscapes
20. -economic support for several resource areas and thus is considered less important
21. -current direction of public opinion to take federal forests out of timber production will cause increase in timber imports and increase timber prices while this may help sustainability it will have adverse effect on inflation and balance of payments
22. -what are institutional barriers, for example legal) practices of forestry in the south
23. -we do not understand fully how the potential gains in fast growing plantations will alter the dynamics of resource demands
24. -the impacts of changes in public attitudes of what constitutes acceptable forest management practices
25. -what are the primary social and economic drivers/forces affecting the status, productivity, ecological diversity and sustainability of Southern forests?
26. -new forest product technology impacts on our forests are unknown
27. -we do not have a meaningful picture of what our forest areas are accessible/available for specific uses
28. -lack of data and methodology to keep up with the rapidity of changes along with making it difficult to track changes

29. -increased cooperation between universities and federal agencies in sharing research information and research project
30. -forest landowners do not fully understand all their options and consequences of their choices for forest resource use.
31. -new technologies that affect forest harvesting, for example chip mills.
32. -what are the economic consequences of not doing prescribed fire treatment?
33. media coverage of these critical issues are biased and represent popular opinion rather than facts.
- 34.** rural concerns and needs are ignored by urban populations.

## **Timber Markets / Forest Management**

1. Landowners should have the right to manage their forests as they see fit.
2. Pine plantations are not perceived as real forests. Some people are concerned that forest management produces only pine plantations; perceived to be of lower value than naturally regenerated forests.
3. Pine plantations are spreading across the landscape.
4. Timber harvest is not the same as timber management.
5. The rate of harvest exceeds the capacity to produce.
6. Technology will not keep up with the utilization.
7. The perception that rotation age of forests is decreasing (becoming younger)
8. Pulp and paper industry will drive the sawmills out of business
9. Reduction of timber harvest on federal lands is shifting increased harvest pressures to South.
10. The industry knows how to sustain the timber productivity without assistance of govern. regulations. Belief that industry is not managing forest lands in a sustainable manner.
11. Forest management reduces biodiversity.
12. Private landowners are not managing their lands for sustainability; private lands are harvesting lands without using forest management, or being managed in a sustainable manner.
13. There is a significant change occurring in private forest landownership, there is an increase in the number of smaller ownerships. There is a change in forest landowner patterns.
14. Not all forest land is available for harvest, therefore the supply being portrayed is not as great as it is being portrayed. This is due to the land owner's objective is not economic motivated; due to landowner interest and attitudes.
15. If we sustain non-timber values, we will affect the ability to meet the demand for wood products. By focusing on non-timber resources, forest product demands will not be provided.
16. Global demands for forest products are increasing timber harvest in Southern Forests.
17. There is too much emphasis on timber production when other resources can be substituted for the wood products.
18. Need to recognize the inter-connectivity of wood production with other forest resources and their values; these are not recognized or fully understood.

19. TES species are not given sufficient value by industry and NIPF in their forest management.
20. New equipment being used is more intense, more impacting on the other forest resources.
21. What are the forest practices on public lands as compared to the forest practices occurring on private and industry lands.
22. Perception that intensive forest management practices are inappropriate, e.g., clearcutting, use of pesticides, discriminating against hardwoods, the kindest management is single tree selection.
23. Ecosystem management has come to mean management for all resources except wood production.
24. Forest industry are disposing of their forest properties; land has a higher value than what they were using the land for, plantations are a liability, etc.
25. Public perceptions are that prescribed fire management is the same as pine management.
26. We need to know and better disclose the “value added” economic measure of timber that is harvested and acknowledge the importance of “value added” of timber harvest local community.
27. Govern. regulations are needed for private landowners to have forest management objectives.
28. Need for education of NIPF landowners on how management can provide multiple benefits for them and society.
29. Urban pressures on NFS land have been effective in reducing the opportunity to have NFS land contribute to the nation's wood supply.
30. Publics are requesting that more land be put into public ownership to protect
31. Create the opportunity to buy the rights on how a property's forest will be managed; e.g., TNC's forest bank in southwest VA.
32. Provide financial incentives (property tax breaks, capital gain reductions, etc.) to NIPF to better manage their forest property.

## **Water/Aquatic Ecosystems**

1. -Wetlands are becoming fragmented by a variety of activities.
2. -Accuracy of wetlands inventories is suspect.
3. -Insufficient baseline inventory data on many aquatic species do not allow determination of effects from land management practices.
4. -Global warming may be reducing the amount of water in streams (recreation, electric power and municipal reservoirs, also).
5. -Stream habitat conditions are adversely impacted by silvicultural and other (roads, recreation, etc.) activities.
6. -Silvicultural activities contribute a large portion of the total sediment load to the aquatic ecosystem.
7. -BMPs are not being practiced on private lands, and there is no incentive to follow or enforce them.
8. -Meeting projected urban water supply demand will result in building new dams on forest lands.
9. -Loss of forest land to mining (i.e. mountain top removal, valley fills, etc.) will impact energy inputs to headwater streams.
10. -Lack of forest road maintenance causes water quality degradation.
11. -Conversion of deciduous wetland forests to pine systems adversely impacts ecological diversity.
12. -Changes in land use and land cover are adversely impacting threatened and endangered species.
13. -Mitigation for forested wetland activities is inadequate.

14. -Heavy timber harvesting within a small watershed over a short time period may result in increased water yield and channel instability.
15. -Most persons do not understand how their everyday activities impact aquatic ecosystems.
16. -Intensive agricultural practices adversely impact ecological diversity and productivity.
17. -Intensive forest management may result in more impact to aquatic ecosystems than less intensive forest management.
18. -There is a higher relative demand, and therefore, impact, on aquatic resources than on uplands (water draws people).
19. -Coastal forests are being lost to erosion, land subsidence, and salt water intrusion.
20. -Invasive plant species impact regeneration of wetland forests.
21. -Hemlock will be wiped out by adelgid and this will impact aquatic ecosystems.
22. -Changes in global markets will influence distribution of invasive species.
23. -Acid precipitation will continue to alter chemical and physical parameters of streams.
24. -Afforestation/restoration programs are not achieving objectives.
25. -Current objectives for WRP will result in understocked forests.
26. -We are not achieving biologically feasible productivity levels—we know how to manage better than we manage.
27. -Silvicultural management is increasing based on preference without scientific basis or understanding of sustainability.
28. -Impacts of sea level rise due global climate change to will have major impacts on South East/Gulf rivers, streams, floodplain forests, etc.
29. -Southern streams are wood starved.
30. -Institutional differences exist on how to address water quality issues in forests (TMDLs).
31. -Political and ownership boundaries confuse and complicate water quality improvement efforts.
32. -Recreation demands will adversely affect aquatic resources.
33. -Community (urban) watershed activism is severely underutilized in water/aquatic resources planning.
34. -There is a perception that the only way to meet water quality in forests is to keep all forest management activities completely out of 'riparian areas.'

## **Forest Extent, Structure, and Health**

1. Invasive non-native (exotic) species are affecting the productivity of the South's forests.
2. Public misconceptions about the use of prescribed fire and pesticides negatively affect land manager's ability to implement management practices.
3. Outbreaks of native pests are adversely affecting forest productivity.
4. EPA's proposed NAAQS, regional haze, PM 2.5, and ozone will impair abilities to implement prescribed fire treatments.
5. Rapid urbanization of wildlands are impairing land managers abilities to conduct forest management activities of fire management, pesticide use, recreation, harvesting, and silvicultural activities.
6. The lack of professional forest management practices by some landowners degrades forest health and productivity.
7. Current forest management practices do not adequately address soil quality and productivity.
8. Major changes are occurring in forest composition with regard to tree and plant species, forest structure, and age distribution.
9. Forest fragmentation due to urbanization is interrupting the integrity of large tracts of wildlands.



10. Public misconceptions about old-growth forests and forest dynamics impact abilities of forest management activities.
11. Trends indicate that additional exotic invasive species will pose additional threats to forest health and productivity.
12. The public is not adequately informed about proper forest management activities.
13. Air pollutants may be negatively affecting forest health and productivity.
14. Some advised forest management practices are perceived by NIPFs as too intrusive and part of unnecessary government regulations, such as the Endangered Species Act and state Best Management Practices.
15. Public misconceptions about plantation management practices and other even-aged practices inhibit forest management activities such as chip mills.
16. Non-traditional interests in forest use are imposing new restrictions on forest management activities, such as salamanders, ginseng/mushroom hunting.
17. The best forest management practices are sometimes not used because of potential legal and political ramifications.

## **Session 2. Refining the Concerns – List of Major Concerns for Forest Sustainability Study**

### **Concerns are listed by Core Groups**

#### **Landscape/Terrestrial Ecosystem Group –**

1. Rapid urbanization and land use changes in the South is leading to detrimental impacts to some terrestrial plants and animals.
2. Increasing number of landowners with diversified objectives may be impacting forest sustainability and ecosystem health.
3. The effects of more intensive forest management strategies across the South may be negatively impacting sustainability of forest ecosystems (productivity and biological diversity).
4. The lack of integrated information sources and interagency cooperation hinder our ability to manage natural resources.
5. The diversity of public perceptions, attitudes, and land use greatly complicates public policy and forest management.

#### **Social Economic Systems**

(linked to initial set of concerns)

A. Impacts of sustainable forestry on rural communities

1, 2, 4, 7, 9, 10, 14, 18, 35

- population pressures
- local economy

B. Urban trends and opportunities

1, 4, 8, 12, 13, 15, 19, 25,

- population pressures
- fragmentation

C. Institutional/Policy

3, 5, 7, 10, 12, 16, 17, 19, 20, 21, 22, 28, 29, 30, 31, 33,

- property rights and laws
- lack of planning

D. Education, public participation and coordination

6, 36, 12, 13, 17, 25, 31, 34,

- organizational agendas
- different perceptions between urban and rural populations

E. Non-market demands for forest resources

11, 15, 20

- increased recreation
- economic/aesthetic

F. Technologies

24, 27, 32

- timber harvesting
- new wood products
- changing growth rates

## **Forest Extent, Conditions, and Health**

1. Native and invasive non-native (exotic) species are affecting the productivity of the South's forests.
2. Rapid urbanization of wildlands are impairing land managers abilities to conduct forest management activities of fire management, pesticide use, recreation, harvesting, and silvicultural activities and interrupting the structural integrity of large tracts of wildlands.
3. Public sentiment about the use of fire, pesticides, old growth forests, forest dynamics, and management practices negatively affect the ability to implement management activities.
4. Appropriate forest management strategies are sometimes not selected because of potential legal/political ramifications (Endangered Species Act, Best Management Practices, Conservation Reserve Program, etc.).
5. EPA's proposed NAAQS, regional haze, PM 2.5, and ozone will impair abilities to implement prescribed fire treatments.
6. Major changes are occurring in forest composition with regard to tree and plant species, forest structure, and age distribution.

## Water/Aquatic Ecosystems

1. -Insufficient baseline data on many aquatic species does not allow determination of effects from land management practices.
2. -Stream habitat conditions are adversely impacted by silvicultural and other (e.g. roads, recreation, etc.) activities.
3. -Silvicultural activities contribute a large portion of total sediment load to aquatic ecosystems.
4. -BMPs are not being practiced on private lands and there's no incentive to follow them nor any way to enforce BMPs.
5. -Lack of road (in forests) maintenance causes water quality degradation.
6. -Changes in land use and land cover are adversely impacting threatened and endangered species.
7. -Recreation demands will adversely affect aquatic resources.

## Timber Markets / Forest Management Core Area

*From all of these concerns, identify (modify / combine / choose) 4 to 6 broad, general concerns that would be appropriate to address in this regional-scale sustainability assessment.*

1. NIPF and industry landowners are concerned about retaining their right to determine how they will manage their lands. Landowner Rights issues verses government regulations; (I should be able to decide what I do with my land; no the government should tell what you can do; no you should not even have the land)
2. The increasing demand for wood products from the South combined with the changing sturcture of ownerships / shifting wood product demand
3. Increased demands for timber and changing demands for all forest resources with limited forest resources result in competing demands for the limited forest resources, with some people not happy.
4. Private forest land are not being managed in a sustainable manner, i.e., there is a lack of sustainable forest management.
5. Past intensive forest management practices are inappropriate to sustaining wood production in the South.

## **Session #3 Defining derivative questions from the concerns**

### **Assessment Questions Broad Category A Landscape/Terrestrial Ecosystems**

#### **Concern #4. Main questions that need to be answered:**

- A1. Based on the selection criteria, what plant and animal species will be emphasized in the SSA and what are their habitat relationships (forest community, forest succession, rare communities)? (criteria: federally listed threatened and endangered species, rangewide viability, major game species, high management/public interest, demanding habitat requirements, keystone species).
- A2. What is the status, trends, and distribution of terrestrial habitats stratified according to landownership, ecological units, states, and across the South?
- A3. What ecosystem conditions and management activities are needed to sustain habitats for the selected plant and animal habitat associates?
- A4. What roles do the various landowners have now and in the future to sustain habitats for the selected plant and animal species?

#### **Concern #1. Rapid urbanization and land use changes in the South are leading to detrimental impacts to some terrestrial plants and animals.**

:

- A5. What are the historic land use changes in the South? [NRI data (state level): 1982-present]
- A6. What are the projected land use changes?
- A7. What are the historic and projected changes in forest land use intensity (e.g., native to plantation, recreational)?
- A8. What are effects of road density on habitat and selected plant and animal species?
- A9. What are the effects of road maintenance on selected species?
- A10. What are the impacts of environmental stressors (drought, ozone, acid rain) on forest structure, composition, and function?
- A11. How have land use changes affected forest composition and structure?
- A12. How do human population changes influence plant and animal diversity?
- A13. What are the effects of urban development on plant and animal habitats?

#### **Concern #2. Increasing number of landowners with diversified objectives may be impacting forest sustainability and ecosystem health.**

- A14. What is the distribution of land ownership by tract size?
- A15. What is the forest composition and age class distribution of those ownerships?
- A16. What percentage of non-industrial private land owners are actively managing their lands?
- A17. What are the natural resource objectives of non-industrial private landowners?
- A18. What are the trends and driving factors influencing non-industrial private landowner objectives?
- A19. What are the trends and driving factors for landownership changes?
- A20. How does land ownership affect forest management and resource sustainability?

**Issue 3. The effects of more intensive forest management strategies across the South may be negatively impacting sustainability of forest ecosystems (productivity and biological diversity).**

Questions:

- A21. Has intensive forest management resulted in younger forest?
- A22. Has intensive forest management resulted in reduction in soil productivity?
- A23. Has intensive forest management resulted in changes in species composition?
- A24. Has intensive forest management resulted in increased soil erosion?
- A25. Has intensive forest management resulted in less complex forest structure?
- A26. Has intensive forest management resulted in adverse impacts to t&e species?
- A27. Has intensive forest management resulted in adverse impacts to water quality?
- A28. Has intensive forest management resulted in adverse impacts to game species?
- A29. Has intensive forest management resulted in beneficial effects to select species?
- A30. What are the trends in annual timber harvest (acres) and reforestation?
- A31. What is the management regime on pine plantations?
- A32. What are the trends in fire management activities (prescribed fire, fire suppression, etc.)?
- A33. What barriers exist to the use of prescribed burning?

**Issue 4. The lack of integrated information sources and interagency cooperation hinder our ability to manage natural resources.**

- A34. What are the tools necessary to address this issue?

**Issue 5. The diversity of public perceptions, attitudes, and land use greatly complicates public policy and forest management.**

- A35. What are the public perceptions?
- A36. How the changing public perceptions and attitudes affecting public policy and forest management?

**Assessment Questions  
BROAD CATEGORY B  
Forest Extent/Condition/Health**

**Concern #1: Native and invasive non-native (exotic) species are affecting the productivity of the South's forests.**

- B1. What are the most important native and invasive/exotic species and where do they occur (now and in the future)?
- B2. What are the effects of these species on forest conditions?
- B3. What are the factors that will influence future rates of spread of native and exotic species?
- B4. What are the factors that will influence future introductions of invasive exotic species?

**Concern #2: Rapid urbanization of wildlands and forest fragmentation are impairing land managers abilities to conduct forest management activities of fire management, pesticide use, recreation, harvesting, and silvicultural activities and interrupting the structural integrity of large tracts of wildlands.**

B5. What are the socio-economic tradeoffs to different strategies associated with managing the integrity of wildlands? (e.g. prescribed versus wildland fires, pesticide use, silviculture, recreation)

B6. What is the extent and distribution of forest fragmentation during the past two decades?

B7. Where is urbanization most likely to occur during the next 10 years?

B8. How changes in land ownership affect the management of forestlands and what are those ownership changes?

**Concern #3: Public sentiment about the use of fire, pesticides, old growth forests, forest dynamics, and management practices negatively affect the ability to implement management activities.**

B9. What are public opinions about the use of fire, pesticides, old growth, forest dynamics, etc.?

B10. What are the sources of information that the public uses to formulate their opinions?

B11. How has public sentiment affected sustainability and management practices?

B12. What are the demographics of the people or groups who express public opinion related to forest management?

**Concern 3: Appropriate forest management strategies are sometimes not selected because of potential legal/political ramifications (Endangered Species Act, Best Management Practices, Conservation Reserve Program, etc.).**

B13. What are the specific legal and political ramifications that are currently in place or proposed?

B14. Who influences the establishment of legal and political actions?

B15. Which policies and laws have conflicting objectives?

B16. How have policies and laws affected forest conditions?

**Concern 4: EPA's proposed NAAQS, regional haze, PM 2.5, and ozone regulations will impair abilities to implement prescribed fire treatments.**

B17. What are the current and proposed regulations that have potential effects?

B18. How would policies affect the amount, type, and timing of prescribed fire treatments in fire-adapted/fire-dependent systems?

B19. What are the economic and ecological trade-offs of implementing prescribed fire management?

B20. What are the sources of emissions that have potentially negative effects?

**Concern 5: Major changes are occurring in forest composition with regard to tree and plant species, forest structure, and age distribution.**

B21. What do the forests currently look like and what changes or trends are occurring?

B22. What are the natural and human induced events that influence changes?

B23. What are the tree and other plant species that are changing?

B24. What species and communities are at risk?

**Assessment Questions  
BROAD CATEGORY C  
Water/Aquatic Ecosystems**

**1. Concern - BMPs are not implemented on private lands, there is no way to enforce BMPs and no incentives to follow suggested BMPs.**

C1. Do BMPs work in protecting water quality? Are they adequate? Are they implemented?

C2. What are the actual compliance rates with BMPs?

C3. Why do landowners choose to (or not) implement BMPs?

C4. What factors influence implementation of BMPs?

C5. What measures are in place currently to enforce or encourage or provide incentives to implement BMP?

C6. What effect do BMPs have on aquatic systems, habitats, species?

C7. Are there standardized methods for monitoring compliance rates among states?

C8. Is there variation among forest ownership classes, areas of the South? (industrial/PNIF)

C9. How well are loggers trained to implement BMPs?

C10. Is there monitoring system for BMPs? Is monitoring adequate?

**2. Concern - Stream habitat conditions are adversely impacted by silvicultural and other (roads, recreation, etc.) activities?**

C11. What aquatic habitat conditions are effected by forest management?

C12. What baseline data are available to detect changes in stream conditions?

C13. What are the relative levels of the adverse impacts to aquatic systems from roads, silviculture, recreation?

C14. Can we separate past land-use practices from current land use practices?

C15. Can cumulative impacts from land uses be accurately assessed?

**3. Concern – Insufficient baseline data on many aquatic and wetland species does not allow determination of effects from land management practices?**

C16. Where are the data gaps for locations and habitat requirements for aquatic species of concern?

C17. What water quality/quantity parameters are effected by forest management practices?

- C18. Are there accurate methods for determining whether silvicultural practices are impacting aquatic species?
- C19. Can we use indicator species to evaluate forest management impacts to aquatic species?
- C20. Are current wetland inventories accurate and thorough?
- C21. For what species do we have adequate baseline data?

#### **4. Concern – Do silvicultural activities contribute a large portion of the total sediment load to aquatic ecosystems?**

- C22. What portion of the total sediment load is attributed to each land use?
- C23. What measures are available to reduce excessive sediment loads and associated erosion rates?
- C24. How can we ensure that available measures are utilized?
- C25. Are water quality parameters, such as turbidity, improving or degrading over time?
- C26. What types of silvicultural activities induce the greatest soil erosion and sedimentation ?
- C27. How do excessive sediment loads from forest practices interact with other activities?
- C28. What are the economic implications of sedimentation of aquatic ecosystems due to silviculture?
- C29. How does sedimentation from forest management practices impacts streams /aquatic systems downstream?

#### **5. Concern – Lack of road maintenance causes water quality degradation?**

- C30. What is the science involved with proper road construction/maintenance to minimize impacts to water quality?
- C31. What educational materials are available for road construction/maintenance?
- C32. Can we separate the effects of poor road design from poor road maintenance?
- C33. Are we leaving roads open that should be closed between uses?
- C34. What practices are available to re-seed roads for wildlife use?
- C35. What road maintenance activities cause water quality degradation?
- C36. Is sedimentation from roads a local or regional problem?

#### **6. Concern - Changes in land use/land cover are adversely impacting aquatic threatened and endangered species?**

- C37. What is the rate of permanent loss of forested land and what are the reasons?
- C38. Do changes in land uses/land cover adversely impact threatened and endangered aquatic listed species?
- C39. What changes adversely impact listed species?
- C40. What aquatic species have been impacted by forest management activities?
- C41. Are present land management regulations (CWA 404, ESA, NPDES) adequate to recover listed species?
- C42. What effect do changes in forest cover (pine to hardwood) have on threatened and endangered species?

#### **7. Concern – How do recreational demands will adversely affect aquatic resources?**

- C43. How does recreation increase risk of invasion by exotic species?
- C44. How do various recreational uses impact the aquatic resources ? Compare horse use, fishing, hiking, mountain biking, etc.



- C45. How do recreational flows affect aquatic systems?
- C46. What effect do trout stocking programs have upon native aquatic communities?
- C47. How much recreation occurs in or near water resources?
- C48. Is the growth of water-based recreation sustainable?
- C49. What are the effects of greentree reservoir management on forested wetlands?

**Assessment Questions**  
**Broad Category D**  
**Timber Markets / Forest Management Core Area**

**Concern #1. NIPF and industry landowners are concerned about retaining their right to determine how they can use their lands.**

- D1. What are the current legal precedents (laws, regulations at National, State & local) and interpretations that impact how private forest they use land?
- D2. What are the restrictions on timber harvest? on use?
- D3. Are these laws & regulations being complied with?
- D4. How do these laws and regulations affect forest sustainability?
- D5. What laws are established or proposed for sustainable forest management? “Right to practice forestry” laws?

**Concern #2. Private forest land are not being managed in a sustainable manner, including sustainable forest management. (Management is value driven.)**

- D6. Are private land owners establishing sustainable forest management as part of their land management objective?
- D7. What benefits are not being met or failing to provide on a sustainable basis?
- D8. Are private landowners using acceptable forest management practices to provide timber while protecting the environment?
- D9. To what degree are private landowners reforesting harvested land in acceptable manner.
- D10. How are private land being reforested after harvest?
- D11. How much forest land is being converted to non-forest uses?
- D12. How have land ownership changed over time?
- D13. What are the current mechanisms for providing management information to NIPFs?
- D14. What are the current landowner incentive programs?
- D15. What age class distributions for the NIPF? Trend over time?

**Concern #3. Increased demands for timber and increasing demands for other forest benefits are impacting the ability for the manager to develop appropriate forest management strategies.**

- D16. What information is available to the landowner for management for wood products, for other resource benefits, and for a mix?
- D17. What are the supplies of and demands for wood products in the South?
- D18. How much of the available timberland and inventory is near urban areas?
- D19. How does proximity to urban areas affect the kind of forest management?
- D20. What is our current level of understanding of the relationship to

- D21. What information is available concerning joint production relationships?
- D22. What are joint production relationships among forest uses. (e.g., timber harvesting vs. recreational use)
- D23. are old logging roads acceptable as hiking trails in wilderness areas.
- D24. How is NIPF wood being merchandised?
- D25. What are the spatial relationship in the price of small roundwood products to sawlog products?
- D26. What are the trends in competing forest product prices?

#### **Concern #4. Intensive forest management practices are perceived inappropriate to sustaining wood production in the South.**

- D27. What harvest methods are being used by NIPF owners?
- D28. What forest management practices are being used in the South?
- D29. For what benefit are forest management practices are perceived inappropriate?
- D30. Are there significant changes to forest management types as result of the applied management practices?
- D31. What is the science basis - theoretical, conceptual and experimental - for silviculture for forest disturbance and ecological response to disturbance?
- D32. What is the current state of knowledge and science basis of disturbance ecology?
- D33. What percent of harvest sites is actually disturbed enough to affect productivity?
- D34. What equipment is being used and what are their impacts?
- D35. What silvicultural practices are being used for harvest? for stand tending practices?
- D36. What percent of harvest sites is actually disturbed enough to affect resource sustainability ?
- D37. What proportion of harvest sites are prepared mechanically, chemically, manually?

### **Assessment Questions Broad Category E Social and Economic Systems**

#### **Concern A. Impacts of sustainable forestry on rural communities**

- E1. What are population demographic trends for rural and urban counties?
- E2. What role does the forest resource play in local/county level economy? (Limited resource landowners, minority populations, ...)
- E3. What are other economic potentials/opportunities of rural areas?
- E4. What are trends in land use and ownership pattern changes by county?

#### **Concern B. Urban trends and opportunities**

- E5. Has urbanization caused a decline in forest land area? (data?, timeframe?)
- E6. How is urban growth and attitudes (data? timeframe?) changing management practices?
- E7. What are the trends in recreational demands? (Feasibility ok)
- E8. How are the trends in recreation demand impacting forest management? (data?)

#### **Concern C. Institutional/Policy**

- E9. What is the accessibility and availability of forest resources, by county? (data?, scale?)
- E10. How to improve coordination of resource planning and management
- E11. between public and private organizations/landowners? (data?)
- E12. How to catalyze strategic planning both within and between counties? (data?)

- E13. What are the impacts of federal, state and local laws on the practice of natural resource management in the south?
- E14. What are the non-regulatory tools (incentives, tax structures, ...) for addressing private property rights issues?

### **Concern D. Education, public participation and coordination**

- E15. How do we determine if the grass roots opinion of natural resource management is the same as the leaders opinions of their respective organizations? (data?)
- E16. What, where and how effective are the public schools and early age programs on natural resources?
- E17. What are the variety and scope of resources, incentives, programs, etc. for landowner resource management (all resource management options)?

### **Concern E. Non-timber demands for forest resources**

- E18. What is the supply and demand for non-timber uses? (data???, time?, scale?)

### **Concern F. Technologies**

- E19. What are the projected supplies and areas of short-rotation woody crops? (data?)
- E20. What opportunities exist for extending the forest resource through new technology? (data? scale?)
- E21. What are the trends in new forest harvesting technology and markets? And how are they affecting the forest resource? (data?)

Sorting the questions to define the preliminary assessment questions.

## **Landscapes/Terrestrial Ecosystems**

Questions

### **1. What are the status, trends, and distribution of terrestrial habitats?**

A2. What is the status , trends, and distribution of terrestrial habitats stratified according to land ownership, ecological units, states, and across the South?

### **2. What conditions are needed to sustain plant and animal habitat associations?**

A3. What ecosystem conditions and management activities are needed to sustain habitats for the selected plant and animal habitat associates?

### **3. How have roads influenced habitats, plants, and animals?**

A8. What are effects of road density on habitat and selected plant and animal species?

C34. What practices are available to re-seed roads for wildlife use?

A9. What are the effects of road maintenance on selected species?

### **4. What are the effects of expanding human populations and urbanization affect habitats, animals and plants?**

A12. How do human population changes influence plant and animal diversity?

A13. What are the effects of urban development on plant and animal habitats?

### **5 How has forest management shaped terrestrial ecosystems?**

A25. Has intensive forest management resulted in adverse impacts to t&e species?

A27. Has intensive forest management resulted in adverse impacts to game species?

A28. Has intensive forest management resulted in beneficial effects to select species?

# Social/Economic Systems

## Questions

### 1. How has land use changed over the past and how might it change in the future?

- 1 A5. What is the historic land use changes in the South? [NRI data (state level): 1982-present]
- 1 A6. What are the projected land use changes?
- 1 B7. Where is urbanization most likely to occur during the next 10 years?
- 1 E4. What are trends in land use and ownership pattern changes by county?
- 1 E5. Has urbanization caused a decline in forest land area? (data?, timeframe?)

### 2. What is the demographic profile and preferences of southern citizens and how has it changed?

- 2 A18. What are the trends and driving factors for land ownership changes?
- 2 A35. What are the public perceptions?
- 2 A36. How the changing public perceptions and attitudes affecting public policy and forest management?
- 2 B9. What are public opinions about the use of fire, pesticides, old growth, forest dynamics, etc.?
- 2 B11. How has public sentiment affected sustainability and management practices?
- 2 B12. What are the demographics of the people or groups who express public opinion related to forest management?
- 2 D19. How does proximity to urban areas affect the kind of forest management?
- 2 E1. What are population demographic trends for rural and urban counties?
- 2 E6. How is urban growth and attitudes (data? timeframe?) changing management practices?
- 2 E15. How do we determine if the grass roots opinion of natural resource management is the same as the leaders opinions of their respective organizations? (data?)

### 3. What are current policies, regulations, and laws, and how do they affect natural resource management?

- 3 A32. What barriers exist to the use of prescribed burning?
- 3 A34. What are the tools necessary to address this issue?
- 3 B13. What are the specific legal and political ramifications that are currently in place or proposed?
- 3 B14. Who influences the establishment of legal and political actions?
- 3 B15. Which policies and laws have conflicting objectives?
- 3 B17. What are the current and proposed regulations that have potential effects?
- 3 B18. How would policies affect the amount, type, and timing of prescribed fire treatments in fire-adapted/fire-dependent systems?
- 3 C2. What are the actual compliance rates with BMPs?
- 3 C3. Why do landowners choose to (or not) implement BMPs?
- 3 C4. What factors influence implementation of BMPs?
- 3 C5. What measures are in place currently to enforce or encourage or provide incentives to implement BMP?
- 3 C9. How well are loggers trained to implement BMPs?
- 3 C23. What measures are available to reduce excessive sediment loads and associated erosion rates?
- 3 C24. How can we ensure that available measures are utilized?

- 3 D1. What are the current legal precedents (laws, regulations at National, State & local) and interpretations that impact how private forest they use land?
- 3 D2. What are the restrictions on timber harvest? on use?
- 3 D3. Are these laws & regulations being complied with?
- 3 D4. How do these laws and regulations affect forest sustainability?
- 3 D5. What laws are established or proposed for sustainable forest management? "Right to practice forestry" laws?
- 3 D14. What are the current landowner incentive programs?
- 3 E10. How to improve coordination of resource planning and management
- 3 E12. How to catalyze strategic planning both within and between counties? (data?)
- 3 E13. What are the impacts of federal, state and local laws on the practice of natural resource management in the south?
- 3 E14. What are the non-regulatory tools (incentives, tax structures, ...) for addressing private property rights issues?
- 3 E17. What are the variety and scope of resources, incentives, programs, etc. for landowner resource management (all resource management options)?

#### **4. What are the current mechanisms for informing the public regarding resources and their management?**

- 4 B10. What are the sources of information that the public uses to formulate their opinions?
- 4 C31. What educational materials are available for road construction/maintenance?
- 4 D13. What are the current mechanisms for providing management information to NIPFs
- 4 D16. What information is available to the landowner for management for wood products, for other resource benefits, and for a mix?
- 4 E11. between public and private organizations/landowners? (data?)

#### **5. What motivates private forest landowners and how are their objectives formed?**

- 5 A15. What percentage of non-industrial private land owners are actively managing their lands?
- 5 A16. What are the natural resource objectives of non-industrial private landowners?
- 5 A17. What are the trends and driving factors influencing non-industrial private landowner objectives?
- 5 A19. How does land ownership affect forest management and resource sustainability?
- 5 B8. How changes in land ownership affect the management of forestlands and what are those ownership changes?

#### **6. What are the critical tradeoffs to various forest management strategies?**

- 6 B5. What are the socio-economic tradeoffs to different strategies associated with managing the integrity of wildlands? (e.g. prescribed versus wildland fires, pesticide use, silviculture, recreation)
- 6 C28. What are the economic implications of sedimentation of aquatic ecosystems due to silviculture?
- 6 D22. What are joint production relationships among forest uses. (e.g., timber harvesting vs. recreational use)

#### **7. How does resource management influence economic structure and health?**

- 7 E2. What role does the forest resource play in local/county level economy? (Limited resource landowners, minority populations, ...)
- 7 E3. What are other economic potentials/opportunities of rural areas?

**8. What are the demands for and supplies of recreation and other nonconsumptive uses of forests in the South?**

8 E7. What are the trends in recreational demands? (Feasibility ok)

8 E8. How are the trends in recreation demand impacting forest management? (data?)

8 E18. What is the supply and demand for non-timber uses? (data????, time?, scale?)

# Timber Markets and Forest Management

## Questions

### 1. What are the demands for and supplies of wood products in the South?

- 1 D17. What are the supplies of and demands for wood products in the South?
- 1 D24. How is NIPF wood being merchandised?
- 1 D25. What are the spatial relationship in the price of small roundwood products to sawlog products?
- 1 D26. What are the trends in competing forest product prices?
- 1 E19. What are the projected supplies and areas of short-rotation woody crops? (data?)
- 1 E9. What is the accessibility and availability of forest resources, by county? (data?, scale?)

### 2. What are the status and the trends of timber harvesting in the South?

- 2 D27. What harvest methods are being used by NIPF owners?
- 2 D33. What percent of harvest sites is actually disturbed enough to affect productivity?
- 2 D34. What equipment is being used and what are their impacts?
- 2 D35. What silvicultural practices are being used for harvest? for stand tending practices?

### 3. What are the status and trends of forest management activities in the South?

- 3 A30. What is the management regime on pine plantations?
- 3 A31. What are the trends in fire management activities (prescribed fire, fire suppression, etc.)?
- 3 B19. What are the economic and ecological trade-offs of implementing prescribed fire management?
- 3 D28. What forest management practices are being used in the South?
- 3 D37. What proportion of harvest sites are prepared mechanically, chemically, manually?

### 4. How might new technologies influence timber harvesting and conditions of forests?

- 4 E20. What opportunities exist for extending the forest resource through new technology? (data? scale?)
- 4 E21. What are the trends in new forest harvesting technology and markets? And how are they affecting the forest resource? (data?)

### 5. What are the management strategies of different forest ownerships in the South?

- 5 D6. Are private land owners establishing sustainable forest management as part of their land management objective?
- 5 D8. Are private landowners using acceptable forest management practices to provide timber while protecting the environment?
- 5 D9. To what degree are private landowners reforesting harvested land in acceptable manner.
- 5 D10. How are private land being reforested after harvest?



5 D21. What information is available concerning joint production relationships for timber products?

**6. What are the ecological implications of different forest management regimes?**

6 D31. What is the science basis - theoretical, conceptual and experimental - for silviculture for forest disturbance and ecological response to disturbance?

6 D32. What is the current state of knowledge and science basis of disturbance ecology?

# Forest Extent, Conditions, and Health

## Questions

### 1. What are the status and distribution of forest area and how has it changed?

- 1 A14. What is the distribution of land ownership by tract size?
- 1 C37. What is the rate of permanent loss of forested land and what are the reasons?
- 1 D11. How much forest land is being converted to non-forest uses?
- 1 D12. How have land ownership changed over time?

### 2. What are the status, trends, and potential future changes to the structure of forests in the South?

- 2 A11. How have land use changes affected forest composition and structure?
- 2 A14. What is the forest composition and age class distribution of those ownerships?
- 2 A20. Has intensive forest management resulted in younger forest?
- 2 A22. Has intensive forest management resulted in changes in species composition?
- 2 A24. Has intensive forest management resulted in less complex forest structure?
- 2 A29. What are the trends in annual timber harvest (acres) and reforestation?
- 2 B6. What is the extent and distribution of forest fragmentation during the past two decades?
- 2 B21. What do the forests currently look like and what changes or trends are occurring?
- 2 B23. What are the tree and other plant species that are changing?
- 2 D15. What age class distributions for the NIPF? Trend over time?

### 2. What factors have and could continue to influence the overall health of the South's forests?

- 3 A10. What are the impacts of environmental stressors (drought, ozone, acid rain) on forest structure, composition, and function?
- 3 A21. Has intensive forest management resulted in reduction in soil productivity?
- 3 A23. Has intensive forest management resulted in increased soil erosion?
- 3 B1. What are the most important native and invasive/exotic species and where do they occur (now and in the future)?
- 3 B2. What are the effects of these species on forest conditions?
- 3 B3. What are the factors that will influence future rates of spread of native and exotic species?
- 3 B4. What are the factors that will influence future introductions of invasive exotic species?
- 3 B24. What species and communities are at risk?

# Water/Aquatic Ecosystems

## Questions

### 1. What are the status and trends of Best Management Practices and how have they affected water quality?

- 1 C1. Do BMPs work in protecting water quality? Are they adequate? Are they implemented?
- 1 C6. What effect do BMPs have on aquatic systems, habitats, species?
- 1 C7. Are there standardized methods for monitoring compliance rates among states?
- 1 C8. Is there variation among forest ownership classes, areas of the South? (industrial/PNIF)
- 1 C10. Is there monitoring system for BMPs? Is monitoring adequate?
- 1 C41. Are present land management regulations (CWA 404, ESA, NPDES) adequate to recover listed species?

### 2. What are the status and trends of water quality in forested watersheds?

- 2 C12. What baseline data are available to detect changes in stream conditions?
- 2 C14. Can we separate past land-use practices from current land use practices?
- 2 C15. Can cumulative (*aquatic*) impacts from land uses be accurately assessed?
- 2 C22. What portion of the total sediment load is attributed to each land use?
- 2 C25. Are water quality parameters, such as turbidity, improving or degrading over time?

### 3. What are the status and trends of forested wetlands in the South?

- 3 C20. Are current wetland inventories accurate and thorough?
- 3 C49. What are the effects of greentree reservoir management on forested wetlands?

### 4. How have forest management activities influenced water quality and aquatic ecosystems?

- 4 A26. Has intensive forest management resulted in adverse impacts to water quality?
- 4 C11. What aquatic habitat conditions are effected by forest management?
- 4 C13. What are the relative levels of the adverse impacts to aquatic systems from roads, silviculture, recreation?
- 4 C17. What water quality/quantity parameters are effected by forest management practices?
- 4 C18. Are there accurate methods for determining whether silvicultural practices are impacting aquatic species?
- 4 C19. Can we use indicator species to evaluate forest management impacts to aquatic species?
- 4 C26. What types of silvicultural activities induce the greatest soil erosion and sedimentation ?
- 4 C27. How do excessive sediment loads from forest practices in interact with other activities?
- 4 C29. How does sedimentation from forest management practices impacts streams /aquatic systems downstream?
- 4 C30. What is the science involved with proper road construction/maintenance to minimize impacts to water quality?

- 4 C32. Can we separate the effects of poor road design from poor road maintenance?
- 4 C35. What road maintenance activities cause water quality degradation?
- 4 C36. Is sedimentation from roads a local or regional problem?
- 4 C40. What aquatic species have been impacted by forest management activities?

## 5. **What are the status and trends of aquatic habitats and species in the South?**

- 5 C16. Where are the data gaps for locations and habitat requirements for aquatic species of concern?
- 5 C21. For what species do we have adequate baseline data?
- 5 C38. Do changes in land uses/land cover adversely impact threatened and endangered aquatic listed species?
- 5 C39. What changes adversely impact listed (*aquatic*) species?

## 6. **How has outdoor recreation affected water quality and aquatic ecosystems?**

- 6 C43. How does recreation increase risk of invasion by exotic species?
- 6 C44. How do various recreational uses impact the aquatic resources ? Compare horse use, fishing, hiking, mountain biking, etc.
- 6 C45. How do recreational flows affect aquatic systems?
- 6 C46. What effect do trout stocking programs have upon native aquatic communities?
- 6 C47. How much recreation occurs in or near water resources?
- 6 C48. Is the growth of water-based recreation sustainable?
- C42. What effect do changes in forest cover (pine to hardwood) have on threatened and endangered species?

# An Assessment of Southern Forests: Formulating the Questions

Experts Workshop  
**June 17-18, 1999**

Atlanta, Georgia

Participant's Information Package
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Enclosed is some information that should prove useful in preparing for our upcoming meeting. In the pages that follow, you will find (1) the initial meeting announcement with logistical details, (2) an agenda for our sessions on 6/17 and 6/18, (3) a brief description of the intent and structure of the assessment, and (4) the set of questions that framed the Southern Appalachian Assessment . The latter might serve as an example of the types and scope of questions we expect would result from our workshop.

Thanks for your participation in this effort!

# **An Assessment of Southern Forests: Formulating the Questions**

**Experts Workshop  
June 17-18, 1999**

Atlanta, Georgia

## **Background**

**The USDA Forest Service, in partnership with the US Environmental Protection Agency, US Fish and Wildlife Service, Tennessee Valley Authority and southern state forestry agencies, is initiating an assessment of the forest resources of 13 southern states. The assessment will bring together agency and other experts to collect and evaluate the most current and relevant information available on the status of the region's forests: their productivity, ecological diversity and sustainability.**

**The first step in this assessment is to define a set of concerns and derivative questions that will be addressed. To frame these questions, we will be assembling a group of experts from federal agencies to participate in a workshop. The initial set of questions defined at this workshop will then be refined through a set of public meetings to be held around the South this summer.**

**Work on the assessment, including the definition of questions will be organized around the following five core areas:**

- 1. Landscapes/Terrestrial Ecosystems**
- 2. Water/Aquatic Ecosystems**
- 3. Forest extent, conditions, and health**
- 4. Timber markets and forest management**
- 5. Social and Economic systems.**

## **Logistics**

**The meeting will convene at 8:30 on Thursday June 17. It will adjourn at noon on the 18<sup>th</sup>. We will meet at the Westin Atlanta Airport. The hotel provides shuttle service from the airport. A block of rooms is being held at the government rate at the Westin. For reservations: call 404-762-7676 and refer to the "Southern Sustainability Assessment Meeting."**

# An Assessment of Southern Forests: Formulating the Questions

Experts Workshop  
**June 17-18, 1999**

## Agenda

Westin Hotel, Atlanta, GA  
June 17-18, 1999

**PURPOSE :** To develop a first cut at the questions that will drive the assessment of the forest resources of the Southern U.S.

Thursday, June 17

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8:30 am          SET-UP and INTRODUCTIONS-- large group

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9:40 am          BREAK

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10:00 am        GENERATING THE CONCERNS this ASSESSMENT COULD ADDRESS—  
small groups.

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Purpose: To identify the major concerns related to the status, productivity, ecological diversity, and sustainability of Southern Forests.

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11:30 am        LUNCH

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12:30 pm        REFINING THE CONCERNS-- small groups

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Purpose: To massage the brainstorm list of concerns into 4-6 broad concerns that would be appropriate to address in this regional-scale assessment.

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1:30 pm          REVIEWING THE CONCERNS—large group

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Purpose: To allow all the participants to review the broad concerns identified by small groups

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2:30 pm          GENERATING QUESTIONS THAT ADDRESS THE CONCERNS-- small groups

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Purpose: To generate questions that must be answered to address the concerns identified earlier. A subset of these questions will ultimately provide the focus for the assessment.

## Experts Workshop June 17-18, 1999

### Agenda (page 2)

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3:40 am          BREAK

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4:00 pm          ASSESSING FEASIBILITY OF ANSWERING THE QUESTIONS—  
small groups

Purpose: To begin thinking about the feasibility of answering the suggested questions in the context of this Assessment.

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5:00 pm          ADJOURN for the day

### Friday, June 18

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8:00 am          ENHANCING THE QUESTIONS

Purpose: To give all participants a chance to hear and comment on the questions generated in small group

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10:00 am        BREAK

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10:20 am        ASSESSING FEASIBILITY OF ANSWERING THE QUESTIONS, Continued

Purpose: To finish thinking about the feasibility of answering the suggested questions in the context of this Assessment.

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11:30 am        WRAP-UP

Purpose: To come together in large group to take stock of the progress made, restate the next steps in the Sustainability Study, and express appreciation for the participation of those at the meeting.

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11:40 am        ADJOURN

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# **The Status of Southern Forests:**

## **Productivity, Ecological Diversity, and Sustainability**

### ***BACKGROUND***

The USDA Forest Service is initiating an effort to compile and analyze data and information necessary to evaluate the status of the forest resources of the southern U.S.; their productivity, ecological diversity and sustainability. Forest resources to be evaluated include timber and forest products, biological attributes, and aquatics. The geographic scope of the evaluation includes the 13 states that comprise the Southern Region (Region 8) of the Forest Service: AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, and VA. It will be conducted in close cooperation with southern state forestry agencies, the US Fish and Wildlife Service, the Environmental Protection Agency, and Tennessee Valley Authority.

For the purposes of this effort, productivity of the forests is intended to connote their ability to produce a full range of amenities and commodities (timber, wildlife, recreation, water, range). Ecological diversity includes biological organisms and their habitats. Sustainability means managing forests to meet the needs of the present without compromising the ability of future generations to meet their own needs by practicing a land stewardship ethic which integrates the growing, nurturing and harvesting of trees for useful products with the conservation of soil, water quality, wildlife and fish habitat, and aesthetics. (American Forest and Paper Association, 1995).

Some initial issue identification was completed as part of the federal interagency staff's recent effort to define issues surrounding forest ecosystem sustainability for the Southeastern Natural Resource Agency Leaders Group. More detailed and comprehensive analyses will be required to ensure that all pertinent and answerable questions are surfaced for this assessment. Input from cooperating and interested agencies and the public will be actively sought.

### ***TIMEFRAME***

The project is expected to take 2 years.

### ***SCOPE AND SCALE***

The assessment will include 2 primary phases, or components: a region-wide status report and one or more smaller area evaluations.

#### **Region-wide Assessment**

While the geographic scope of the project is the 13 southern states noted above, data and information will be retrieved and analyzed at the state and "section" ecological unit levels. Reporting at these scales will maximize the assessment's usefulness at the state and local level and provide an ecological context that transcends political boundaries.

State-level analysis and reporting fits well within traditional means of collecting, storing and reporting forest inventory data. Questions answerable by Forest Inventory and Analysis (FIA) data will be readily addressed at this scale. The FIA program for the South is located at the U.S. Forest Service Southern Research Station in Asheville, NC.

The ecological unit "section" level analysis will prove useful in answering questions on an ecological basis. This scale of analysis, however, provides challenges regarding data compilation and interpretation, as data of different ages and formats must be combined in order to be analyzed.

The scope of subjects to be evaluated will be limited to those for which data and information are readily available and which contribute answers to the critical questions regarding forest resource sustainability. During the region-wide assessment, collection of new data will not be feasible, given the limited time and resources available to address the 13-state area. It is likely, therefore, that some important questions will not be answerable by this evaluation. These will be noted as requiring further study.

## Smaller Area Assessment

Because some resource questions are best answered at a smaller scale, a second tier assessment is also planned. Its purpose will be to focus on smaller areas i.e. ecological units, states, or portions of states, where sustainability appears to either be in question or demands additional attention. This scale of assessment should facilitate more detailed data analysis and evaluation of potential cause/effect relationships.

Criteria for selecting and evaluating these study areas will be identified early in the overall process. Choice of study areas and parameters to be evaluated will be based on information gathered during the region-wide assessment, other agencies' data and information, and public input.

Unlike the region-wide assessment, It is anticipated that this scale of analysis will require additional data collection. Potential sources include FIA, forest industry, regional and state sources, satellite imagery, and other non-government sources. Specific data needs, sources, and associated cost will depend on the number and nature of the smaller area(s) chosen for further study.

## PUBLIC INVOLVEMENT AND COMMUNICATION

The public will be involved throughout the process; from identifying and refining questions to be addressed, to review of the final product. Progress reports will be prepared on a regular basis, and will be available via the Internet. Input will be actively sought from individuals and groups of stakeholders. A public involvement and communications plan, to be developed during the startup phase (April and May, 1999), will provide more details on this important aspect of the project.

## EXPECTED OUTPUTS

The assessment will result in a bound publication containing a variety of tabular, graphic and GIS data accompanied by narrative analysis. The region-wide assessment will be reported separately from the smaller area assessment, The latter will also include tabular, graphic and GIS displays and narrative analysis, but will also likely reflect the use of satellite imagery.

## AGENCY CONTACTS

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## **Broad Categories to Consider for the Sustainability Assessment**

### **Social/Economic Systems**

population and demographic changes  
land use changes/trends  
outdoor recreation supply and demand  
rules, regulations and BMP's at state and local levels  
value of non-wood products  
non-market values  
demand projection  
landowner attitudes/timber availability  
urban/wildland interface

### **Landscape/Terrestrial Ecosystems**

forest and habitat fragmentation  
game and non-game animals  
plant species  
T & E species  
tree species composition  
habitat distribution

### **Water/Aquatic Ecosystems**

water quality  
water yield  
wetland impacts  
distribution of forested wetlands  
sensitive aquatic species

### **Forest Extent/Structure/ Health**

exotic species  
tree mortality  
forest growth  
forest pathogens and insects  
environmental factors  
fire  
age class distribution  
forest type composition  
longterm soil productivity

### **Timber Markets/Forest Management**

afforestation/reforestation  
harvesting intensity  
harvest distribution  
timber supply  
silvicultural practices  
harvesting/processing technology  
timber demand

## **SOUTHERN APPALACHIAN ASSESSMENT QUESTIONS**

**This set of questions was used to frame and guide the Southern Appalachian Assessment. They are included here as an example of the types of issues that might be addressed in a broad scale assessment.**

### **TERRESTRIAL**

- 1: Based on available information and reference material, what plant and animal species occur in the SAA area, and what are their habitat associations?
- 2: What are the status, trends, and spatial distributions of terrestrial habitats and wildlife and plant populations for: Federal T&E Species? Viability Concern (VC) species? Rare communities? Wildlife species that are hunted, viewed, or photographed? Species for which there is high management and public interest? Species with special or demanding habitat needs? Species considered to be true ecological indicators?
- 3: What habitat types, habitat parameters, and management activities are important for maintaining viable populations of the species on the "short list" of plants and animals?
- 4: Based on our current knowledge of ecological land unit capabilities in the Southern Appalachians, what are the conditions needed to: Recover T&E species? Conserve populations of VC species? Maintain existing species and community diversity? Provide suitable populations on National Forests?
- 5: What changes or trends in forest vegetation are occurring in response to human-caused disturbances or natural processes?
- 6: What are the potential effects of the presence or absence of fire on forest health?
- 7: How is the health of the forest ecosystems being affected by native and exotic pests?
- 8: How are current and past management practices affecting the health and integrity of forest vegetation in the Southern Appalachians?

### **ATMOSPHERIC**

- 1: What are the major air pollutants which could impact the Southern Appalachians, and what areas receive the greatest exposure?
- 2: What is the current concentration of particulate matter in the air of the Southern Appalachians?
- 3: How good is visibility in the Southern Appalachians, and how does air pollution affect visibility?
- 4: To what extent are aquatic resources in the Southern Appalachian Assessment area being affected by acid deposition?
- 5: What impact does ground-level ozone have on forests?

## **AQUATICS**

- 1 What is known about the current status and apparent trends in water quality, aquatic habitat, and aquatic species within the Southern Appalachian study area?
- 2 What management factors are important in maintaining aquatic habitat and water quality? What is the extent of riparian area and composition?
- 3 What laws, policies and programs for the protection of water quality, streams, wetlands, and riparian areas are in place, and how do they affect aquatic resources, other resources, and human uses within the SAA?
- 4 What are the current and potential effects on aquatic resources from various activities?
- 5 What are the status and apparent trends in water usage and supplies within the SAA, including water rights and uses on National Forest system land?

## **THE HUMAN DIMENSIONS**

- 1: How has the social pattern of Southern Appalachian communities changed over the past two decades?
- 2: How has the changing social pattern of the Southern Appalachians affected management of natural resources in the region, and what future effects of social trends can we predict?
- 3: How might management of natural resources impact the economic and social status of local communities in the region, particularly communities near major tracts of public land?
- 4: To what extent have interests or publics outside of the Southern Appalachians affected the status and management of the region's ecosystems and public land?
- 5: What are the important attitudes and values that Southern Appalachian residents hold toward natural resources and ecosystem management?
- 6: With particular emphasis on tourism and extractive and other resource-dependent industries, what are the important economic trends in the Southern Appalachians?
- 7: What are the status of and the priorities for management of land by nonindustrial private landowners in the region?

## **THE TIMBER ECONOMY**

1. What are the supplies of and demands for wood products in the Southern Appalachians?
2. Where and how does the wood products industry depend on National Forest System timber?
3. What are the relationships among timber production, employment, and income ?
4. What national forest land is tentatively suitable for timber production in the region and how can assessment findings be incorporated in further analysis of timber suitability?

## OUTDOOR RECREATION

1. What opportunities are there for public land in the Southern Appalachians to provide unique or unsatisfied forest-related recreation demands?
2. How has the recreating public within traveling distance of public land changed in the past 10 years and what are the predicted future changes?
3. What are the supplies of and demands for major types of recreation settings and activities within the area?
4. How is the changing social context of the southern Appalachians likely to affect future recreation demands on public lands?
5. How do recreation opportunities affect the lifestyle and local culture of the area?

## ROADLESS AREAS AND DESIGNATED WILDERNESS

1. Where are the roadless areas on national forests in the SAA area?
2. What is the Forest Service doing to maintain or enhance natural processes in national forest wildernesses?
3. Is there a relationship between the amount of use wildernesses are receiving and their proximity to major population centers?
4. What are the spatial relationships of wilderness and roadless areas to other assessment resources including, but not limited to, old growth, critical habitat, tentatively suitable acres for timber management, recreation settings and use patterns, special classification areas, and land-type associations on national forests?